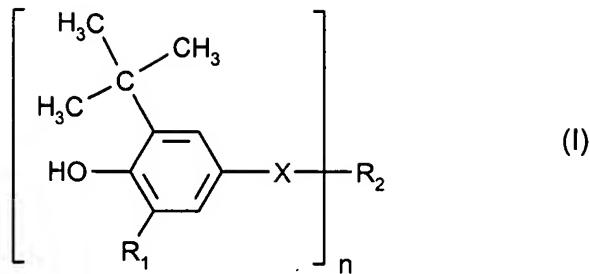


Claims

1. (currently amended) A nanocomposite material comprising
 - a) a synthetic polymer,
 - b) a natural or synthetic phyllosilicate or a mixture of such phyllosilicates in nanoparticles,
 - c) a phenolic antioxidant and/or a processing stabilizer, and
 - d) a mono or polyfunctional compound selected from the class consisting of the epoxidesbisphenol A diglycidyl ether, bisphenol F diglycidyl ether, diglycidyl 1,2-cyclohexanedicarboxylate, phenol novolak epoxy resin, oxazolines, oxazolones, oxazines[[,]] and isocyanates and/or anhydrides.
2. (original) A nanocomposite material according to claim 1, wherein component (a) is a polyolefin.
3. (original) A nanocomposite material according to claim 1, wherein component (b) is a layered silicate clay in nanoparticles.
4. (original) A nanocomposite material according to claim 1, wherein component (b) is a montmorillonite, bentonite, beidelite, mica, hectorite, saponite, nontronite, sauconite, vermiculite, ledikite, magadite, kenyait, stevensite, volkonskoite or a mixture thereof in nanoparticles.
5. (original) A nanocomposite material according to claim 1, wherein component (b) is modified by an ammonium or phosphonium compound.
6. (currently amended) A nanocomposite material according to claim 1, wherein component (c) is the phenolic antioxidant as component (c) is a compound of the formula I



in which

R_1 is $\text{C}_1\text{-C}_4$ alkyl,

n is 1, 2, 3 or 4,

X is methylene, $-\text{CH}_2\text{---CH}_2\text{---C}=\text{O} \text{---Y---}$ or $-\text{CH}_2\text{---C}=\text{O} \text{---O---CH}_2\text{---CH}_2\text{---}$,

Y is hydrogen or $-\text{NH}-$; and,

if n is 1,

X is $-\text{CH}_2\text{---CH}_2\text{---C}=\text{O} \text{---Y---}$, where Y is attached to R_2 , and

R_2 is $\text{C}_1\text{-C}_{25}$ alkyl; and,

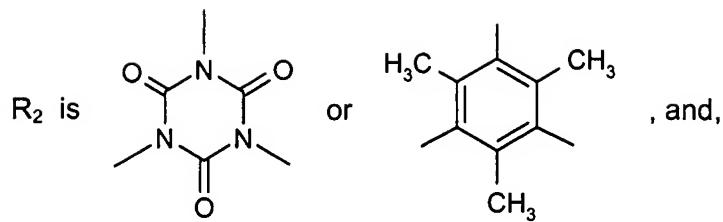
if n is 2,

X is $-\text{CH}_2\text{---CH}_2\text{---C}=\text{O} \text{---Y---}$, where Y is attached to R_2 , and

R_2 is $\text{C}_2\text{-C}_{12}$ alkylene, $\text{C}_4\text{-C}_{12}$ alkylene interrupted by oxygen or sulfur; or, if Y is $-\text{NH}-$, R_2 is additionally a direct bond; and,

if n is 3,

X is methylene or $-\text{CH}_2\text{---C}=\text{O} \text{---O---CH}_2\text{---CH}_2\text{---}$, where the ethylene group is attached to R_2 , and

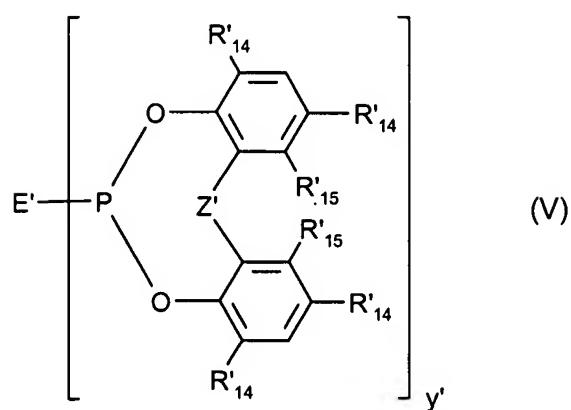
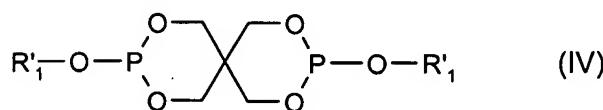
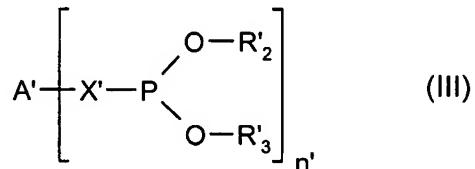
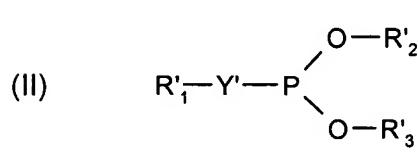


if n is 4,

X is $-\text{CH}_2\text{CH}_2\text{C}(=\text{O})\text{Y}-$, where Y is attached to R_2 , and

R_2 is $\text{C}_4\text{-C}_{10}$ alkanetetrayl.

7. (currently amended) A nanocomposite material according to claim 1, wherein the processing stabilizer as component (c) is a processing stabilizer compound of the formula II, III, IV or V



in which

n' is the number 2 and y' is the number 1, 2 or 3;

A' is C_2 - C_{18} alkylene, p-phenylene or p-biphenylene,

E' , if y' is 1, is C_1 - C_{18} alkyl, - OR'_1 or fluorine;

E' , if y' is 2, is p-biphenylene,

E' , if y' is 3, is $N(CH_2CH_2O)_3$,

R'_1 , R'_2 and R'_3 independently of one another are C_1 - C_{18} alkyl, C_7 - C_9 phenylalkyl, cyclohexyl, phenyl, or phenyl substituted by 1 to 3 alkyl radicals having in total 1 to 18 carbon atoms;

R'_{14} is hydrogen or C_1 - C_9 alkyl,

R'_{15} is hydrogen or methyl;

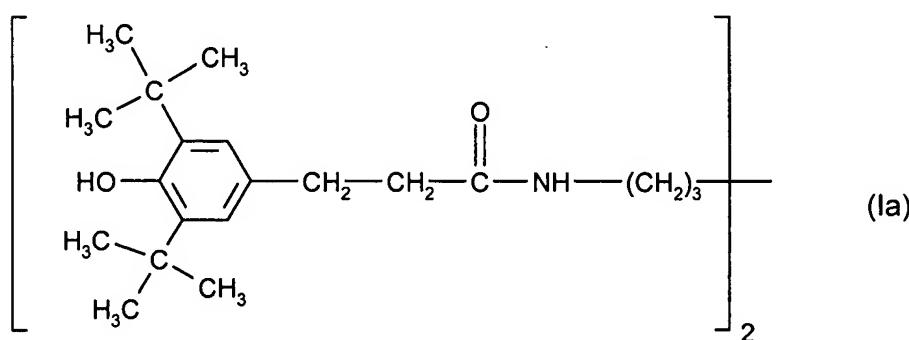
X' is a direct bond,

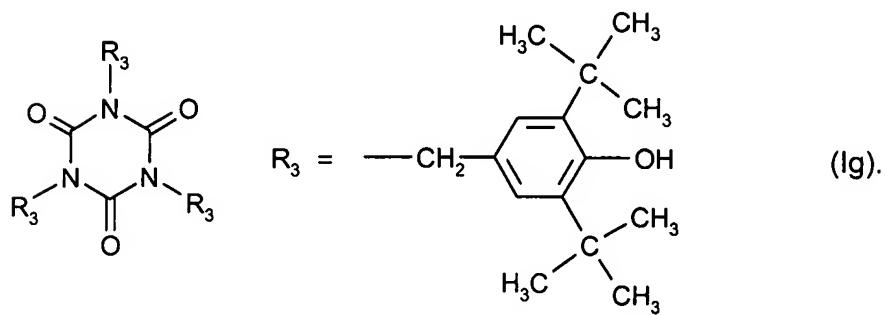
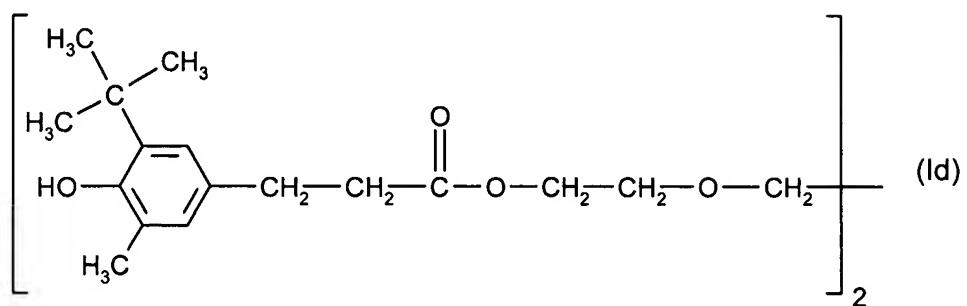
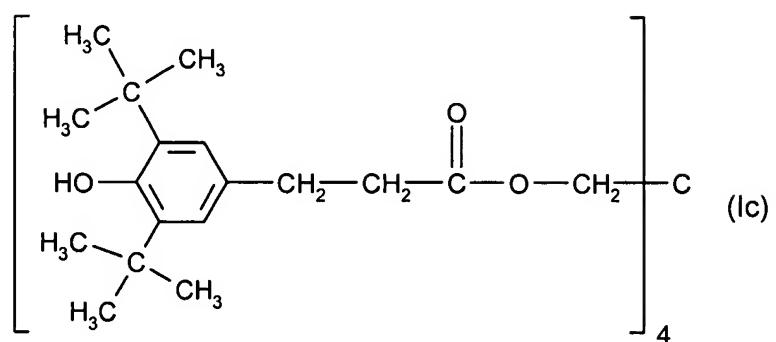
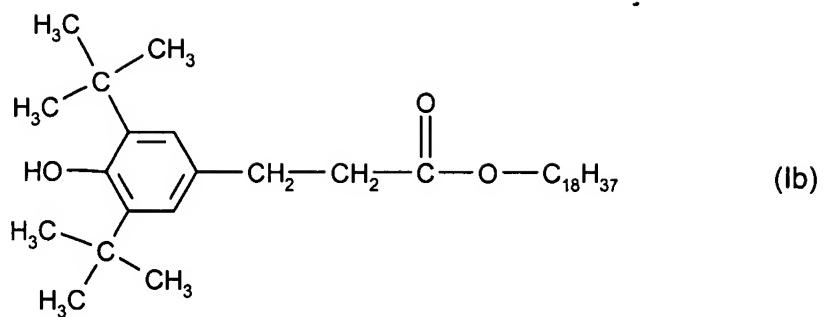
Y' is oxygen,

Z' is a direct bond or - $CH(R'_{16})-$, and

R'_{16} is C_1 - C_4 alkyl; or a benzofuran-2-one.

8. (original) A nanocomposite material according to claim 1, wherein component (c) is tris(2,4-di-tert-butylphenyl) phosphite, bis(2,4-di-tert-butyl-6-methylphenyl) ethyl phosphite, bis(2,4-di-tert-butylphenyl) pentaerythritol diphosphite, tetrakis(2,4-di-tert-butylphenyl) 4,4'-biphenylenediphosphonite, 3-(3,4-dimethylphenyl)-5,7-di-tert-butylbenzofuran-2-one, 3-(2,3-dimethylphenyl)-5,7-di-tert-butylbenzofuran-2-one, and/or a compound of the formula Ia, Ib, Ic, Id or Ig





9. (canceled)

10. (canceled)

11. (original) A nanocomposite material according to claim 1, wherein component (d) is bisphenol A diglycidyl ether, bisphenol F diglycidyl ether, diglycidyl 1,2-cyclohexanedicarboxylate or phenol novolak epoxy resin.

12. (original) A nanocomposite material according to claim 1, wherein component (b) is present in an amount of from 0.01 to 30 %, based on the weight of component (a).

13. (original) A nanocomposite material according to claim 1, wherein component (c) is present in an amount of from 0.01 to 5 %, based on the weight of component (a).

14. (original) A nanocomposite material according to claim 1, wherein component (d) is present in an amount of from 0.01 to 5 %, based on the weight of component (a).

15. (original) A nanocomposite material according to claim 1, comprising in addition, besides components (a), (b), (c) and (d), further additives.

16. (currently amended) A nanocomposite material according to claim 15, comprising as further additives modification agents for nanocomposites, compatibilizers, light-stabilizers, dispersing or solvating agents, pigments, dyes, plasticizers and/or toughening agents.

17. (currently amended) A nanocomposite material according to claim 15, comprising as further additives modification~~modification~~ agents for nanocomposites, compatibilizers and/or metal passivators.

18. (original) A nanocomposite material according to claim 1 in the form of a masterbatch comprising component (b) in an amount of from 0.03 to 90 %, based on the weight of component (a), component (c) in an amount of from 0.03 to 15 %, based on the weight of component (a), and component (d) in amount of from 0.03 to 15 %, based on the weight of component (a).

19. (original) A process for stabilizing a synthetic polymer against oxidative, thermal or light-induced degradation, which comprises incorporating in or applying to said material at least one each of components (b), (c) and (d) according to claim 1.

20. (canceled)